DOCUMENT RESUME

ED 481 666 CG 032 738

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TITLE	Depression, Aggressiveness, and Disruptive Disorders' Comorbidity in Puerto Rican Children.
PUB DATE	2003-08-00
NOTE	16p.; Paper presented at the Annual Conference of the American Psychological Association (111th, Toronto, ON, Canada, August 7-10, 2003).
PUB TYPE	Information Analyses (070) -- Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS
DESCRIPTORS	*Aggression; *Attention Deficit Disorders; Behavior Disorders; *Children; Clinical Diagnosis; Correlation; Depression (Psychology); *Hyperactivity; *Puerto Ricans
IDENTIFIERS	*Oppositional Defiant Disorder

ABSTRACT

The present study was directed at evaluating the relationship between ADHD, ODD/CD, and other diagnoses in children who exhibit aggressive behavior. Six hundred eighteen children (436 boys and 182 girls), ages 9 to 13 participated in the project. Two hundred eight children (164 boys, 44 girls) were diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), (178 boys, 77 girls) with Oppositional Defiant Disorder (ODD) and Conduct Disorder, with other non disruptive disorder, (79 boys, 41 girls) and other children which were referred for aggressive and other disruptive behaviors, but were diagnosed (15 boys, 22 girls). Children were diagnosed with a symptom checklist based on the DSM-IV diagnostic criteria by trained doctoral clinical psychology students. Teachers from the selected schools referred children with aggressive behaviors using a checklist that was provided to them. The Children Depression Inventory (CDI), the Children Behavioral List (CBCL), and the Bauermeister School Behavior Inventory (BSBI). (Contains 13 references and 9 tables.) (Author)

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Depression, Aggressiveness, and Disruptive Disorders' Comorbidity in Puerto Rican Children

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Depression, Aggressiveness, and Disruptive Disorders' Comorbidity in Puerto Rican Children. Pérez, Coralee, B.A., Cabiya, José, Ph.D., and Sayers, Sean, Ph.D.

The present study was directed at evaluating the relationship between ADHD, ODD/CD, and other diagnoses in children who exhibit aggressive behavior. Six hundred eighteen children (436 boys and 182 girls), ages 9 to 13 (M = 15.10, $S.D.$= 7.1) participated in the project. Two hundred eight children (164 boys, 44 girls) were diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), (178 boys, 77 girls) with Oppositional Defiant Disorder (ODD) and Conduct Disorder, with other non disruptive disorder, (79 boys, 41 girls) and others children which were referred for aggressive and other disruptive behaviors but were not diagnosed (15 boys, 22 girls). Children were diagnosed with a symptom checklist based on the DSM-IV diagnostic criteria by trained doctoral clinical psychology students. Teachers from the selected schools referred children with aggressive behaviors using a checklist that was provided to them. The Children Depression Inventory (CDI), the Children Behavioral Check List (CBCL) and the Bauermeister School Behavior Inventory (BSBI).

Depression, Aggressiveness, and Disruptive Disorders' Comorbidity in Puerto Rican Children.

The understanding of early-onset depressive disorders has improved during the past few years. Depressive symptoms are prevalent and serious in children, often causing substantial difficulties in school performance and social relationships. Childhood depressive symptoms negatively affect the social, personal, family, and academic functioning of children, and often persist into adolescence and adulthood (Shoaf, Emslie & Mayes, 2001). In recent years, studies also have found high levels of psychiatric comorbidity in children meeting operational definitions of depressive symptoms. This high level of comorbidity has been found in culturally and regionally diverse epidemiological samples, as well as in clinical samples (Biederman, Faraone, Mick, Moore & Lelon, 1996). Considerable data indicate that, particularly in clinic-based samples, children with ADHD are more likely to meet diagnostic criteria for one or more mood disorders than are comparison children (Biederman, 1991). Children with comorbid ADHD and depressive symptoms also appear to be at higher risk for poor outcomes (e.g., suicidality). Moreover, in community samples, ADHD has been associated with elevated levels of depressive symptoms (Treuting & Hinshaw, 2001).

The clinical observation and research studies also, suggests that emotional self-control may be problematic for children with ADHD (Barkley, 1998). The possibility that the commonly noted association of ADHD with defiant and hostile behavior may, at least in part, stem from a deficiency in emotional self-regulation in those with ADHD. These findings merely suggest rather than confirm a link between ADHD and emotional self-regulation and tend to imply that the poorest emotion modulation may be within the aggressive sub-group of ADHD children. However, after reviewing the aforementioned literature, the relationship between ADHD, ODD/CD and non disruptive disorders and depressed mood has not been studied with Hispanic children. Thus, the goal of the present study was to evaluate the relationship of depressed mood with ADHD, ODD/CD, and non disruptive disorders in Hispanic children.

Method

Participants

Six hundred eighteen children (436 boys and 182 girls), ages 9 to 13 ($M = 10.72$, $S.D. = 1.55$) participated in the project. Two hundred eight children (164 boys, 44 girls) were diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), (178 boys, 77 girls) with Oppositional Defiant Disorder (ODD) and Conduct Disorder, with non disruptive diagnoses, (79 boys, 41 girls) and others children which were referred for aggressive and other disruptive behaviors (15 boys, 22 girls). Children were diagnosed with a symptom checklist based on the DSM-IV diagnostic criteria by trained doctoral clinical psychology students.

Instruments

Children Depression Inventory (CDI). The CDI is a self-report scale consisting of 27 items related to depression. The scale was adapted for children and youths by Kovacs (1985). Scores of 0-11 are considered as absence of depression. Scores of 12-18 are considered mild depression and scores of 19 or more severe depression. The scale was translated and adapted for the Puerto Rican culture by Bernal, Rosselló, and Martínez (1997). The scale has shown an internal consistency of .82 and of .79 (Bernal, Rosselló, and Martínez, 1997).

Child Behavior Checklist (CBCL-C; Achenbach, 1991) (Spanish version for children). This version includes descriptions about the child competencies, behavioral and emotional problems as perceived by the child's mother or father. The Child Behavior Checklist (CBCL) is one such an alternative method of assessing psychopathology that does not require interviewers (Achenbach, 1991). A large body of research demonstrates its reliability and validity in both clinical and nonclinical populations. These considerations suggest that the CBCL could serve as a useful instrument to validate comorbid cases of ADHD and depression (Biederman, Faraone, Mick, Moore & Lelon, 1996). The internal consistency of the scale was .65. This instrument was translated and adapted for Puerto Rican children by the Puerto Rico Child Psychiatric Epidemiology Study (Bird et al., 1988).

Bauermeister School Behavior Inventory (BSBI) (Bauermeister, 1994). This inventory, which is completed by teachers, consists of six scales for male children and five for female children. This inventory evaluates anxiety symptoms, social alienation, depression, irritability-hostility, distraction-motivation and activity-impulsiveness.

Procedures

Graduates students at the doctoral level conducted interviews using the Children Depression Inventory (CDI), the Child Behavior Checklist (CBCL-C; Achenbach, 1991) (Spanish version for children) and the Bauermeister School Behavior Inventory (BSBI) (Bauermeister, 1994). The children completed the CDI. The CBCL-C; Spanish version for children, was filled out by the perceptions of the child's mother or father. And teachers completed the last one, the BSBI. The information obtained was completed with the clinical judgment, which evaluated the structured and unstructured parts of the interview. Based on this information, the clinician completed a symptoms checklist for each participant according to the DSM-IV (1994) criteria for ADHD, ODD/

Results

Multivariate and one-way analyses of variance were performed in order to evaluate any significant differences between the four diagnostic groups, namely, ADHD, ODD/CD, non disruptive disorders and no diagnosis, in each measure. A summary of the group means in each measure is presented in Table 1 for boys and Table 2 for girls, while Table 3 through 6 present a summary of multivariate and one way analyses of variance. Significant differences between groups were obtained for the CDI and the Anxiety/Depression Scale of the CBCL in males but not in females
Tukey comparisons show that the ADHD group scored higher than the ODD/CD and No diagnosis groups in the CDI and the Anxiety/Depression Scale of the CBCL. Table 7 through 8 summarizes these comparisons. In addition, significant correlations were obtained between the Aggression Scale and the Anxiety/Depression Scale of the CBCL as shown in Table 9.

Discussion

The finding that Puerto Rican ADHD children scored higher than the other groups in depressed mood is consistent with Treuting & Hinshaw (2001) finding of a high comorbidity between ADHD and depressed mood in North American children. Thus, there appears to be a consistency across cultural boundaries in terms of the co-morbidity of ADHD with depressed mood. The finding that there was a correlation between depressed mood and aggressive behavior also suggests that there

is a high co-morbidity in Puerto Rican children between ADHD and disruptive behaviors including aggressive behaviors which also has been found with North American children by Barkley (1998).

One viable explanation to this pattern of results is provided by Barkley. Barkley (1998) indicates in his theory of the etiology of ADHD that self-regulation is the most important component in explaining ADHD. With self-regulation, he refers to "any response, or chain of responses, by the individual that alters the probability of their subsequent response to an event and a later consequence related to that event" (p. 232). In addition, cognitive components related to executive functions of self-regulation may also lead to behavioral inhibition associated with ADHD. Therefore, both depressed mood and aggressive behavior be part of a continuum in ADHD children. Depressed mood might be at one end of the continuum and might be characterized by over-inhibition of behavior, while at the other end, aggressive behavior might be related to poor self control as the results of deficits in self-regulation. Further research is needed to test more directly the validity of these explanations.

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Table 1
Boys' mean scores and standard deviations for the four diagnostic groups

Measure	Grouped Diagnoses			
	ADHD	ODD/CD	Other Non-Disruptive Diagnoses	No Diagnosis
CDI	15.41 (S.D. = 6.84)	14.43 (S.D. = 6.74)	13.42 (S.D.= 6.48)	11.80 (S.D. = 4.97)
Anxiety/Depression (CBCL)	9.01 (S.D. = 5.79)	7.96 (S.D. = 4.61)	6.09 (S.D. = 4.05)	7.23 (S.D.=2.49)

* $p < .05$

Table 2
Girls' mean scores and standard deviations for the four diagnostic groups

Measure	Grouped Diagnoses			
	ADHD	ODD/CD	Other Non-Disruptive Diagnoses	No Diagnosis
CDI	17.29 (S.D. = 8.15)	16.71 (S.D. = 7.18)	16.02 (S.D.= 8.24)	14.90 (S.D. = 8.62)
Anxiety/Depression (CBCL)	9.36 (S.D. = 5.67)	10.20 (S.D. = 6.77)	8.79 (S.D. = 5.71)	5.81 (S.D.= 4.80)

* $p < .05$

Table 3
Multivariate Tests results for boys

Effect		Value	F	Hypotheses df	Error df	Sig.
Intercept	Pillai's Trace	.900	611.121	3.000	203.000	.000
	Wilks'Lambda	.100	611.121	3.000	203.000	.000
	Hotelling's Trace	9.031	611.121	3.000	203.000	.000
	Roy's Largest Root	9.031	611.121	3.000	203.000	.000
Diagnostic Group	Pillai's Trace	.079	2.807	6.000	408.000	.011
	Wilks'Lambda	9.22	2.819	6.000	406.000	.011
	Hotelling's Trace	.084	2.831	6.000	404.000	.010
	Roy's Largest Root	.070	4.793	3.000	204.000	.003

Table 4
Multivariate tests results for girls

Effect		Value	F	Hypotheses df	Error df	Sig.
Intercept	Pillai's Trace	.831	130.699	3.000	80.000	.000
	Wilks'Lambda	.169	130.699	3.000	80.000	.000
	Hotelling's Trace	4.901	130.699	3.000	80.000	.000
	Roy's Largest Root	4.901	130.699	3.000	80.000	.000
Diagnostic Group	Pillai's Trace	.034	.460	6.000	162.000	.837
	Wilks'Lambda	.967	.455	6.000	160.000	.841
	Hotelling's Trace	.034	.450	6.000	158.000	.844
	Roy's Largest Root	.023	.628	3.000	81.000	.599

Table 5
Results of the One-Way analyses for boys

Source	Dependent Variables	Sum Squares	df	Means Square	F	Sig.
Diagnostic Group	CDI total	382.754	2	191.377	4.457	.013
	Anxiety/Depression (CBCL)	211.285	2	105.642	4.797	.009
	Depression (BSBI)	87.710	2	43.855	2.207	.113

Table 6
Results of the One-Way analyses for girls

Source	Dependent Variables	Sum Squares	df	Means Square	F	Sig.
Diagnostic Group	CDI total	64.117	2	32.058	.628	.536
	Anxiety/Depression (CBCL)	14.289	2	7.145	.181	.835
	Depression (BSBI)	47.586	2	23.793	.587	.558

Table 7
Multiple Comparisons results for boys

Dependent Variable	(I)Grouped diagnoses	(J)Grouped diagnoses	Mean Difference	Std. Error	Sig.
CDI Total	ADHD	ODD/CD	2.51*	1.05	.048
		No DX	3.89*	1.42	.018
	ODD/CD	ADHD	-2.51*	1.05	.048
		No DX	1.38	1.28	.529
	No DX	ADHD	-3.89*	1.42	.018
		ODD/CD	-1.38	1.28	.529
Anxiety/Depression CBCL	ADHD	ODD/CD	1.64	.754	.079
		No DX	3.04*	1.01	.009
	ODD/CD	ADHD	-1.64	.754	.079
		No DX	1.40	.915	.280
	No DX	ADHD	-3.04*	1.01	.009
		ODD/CD	-1.40	.91517	.280
Depression BSBI	ADHD	ODD/CD	-.216	.716	.951
		No DX	1.59	.963	.225
	ODD/CD	ADHD	.216	.717	.951
		No DX	1.81	.869	.096
	No DX	ADHD	-1.59	.963	.225
		ODD/CD	-1.81	.869	.096

Table 8
Multiple Comparisons results for girls

Dependent Variable	(I)Grouped diagnoses	(J)Grouped diagnoses	Mean Difference	Std. Error	Sig.
CDI Total	ADHD	ODD/CD	.750	2.70	.958
		No DX	2.61	2.97	.656
	ODD/CD	ADHD	-.750	2.70	.958
		No DX	1.86	1.83	.569
	No DX	ADHD	-2.61	2.97	.656
		ODD/CD	-1.86	1.83	.569
Anxiety/Depression CBCL	ADHD	ODD/CD	-1.05	2.38	.898
		No DX	-.279	2.67	.994
	ODD/CD	ADHD	1.05	2.38	.898
		No DX	.774	1.61	.881
	No DX	ADHD	.279	2.61	.994
		ODD/CD	-.774	1.61	.881
Depression BSBI	ADHD	ODD/CD	-2.61	2.41	.527
		No DX	-2.26	2.65	.670
	ODD/CD	ADHD	2.61	2.41	.527
		No DX	.345	1.63	.976
	No DX	ADHD	2.26	2.65	.670
		ODD/CD	-.345	1.63	.976

Table 9
Correlations results for boys and girls

	Anxiety/Depression CBCL	Aggressive/Conduct CBCL
CDI Total	.521**	.481**
Anxiety/Depression CBCL		.669**

**. Correlation is significant at the 0.01 levels

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~~Publication~~ Presentation Date: August 9-11, 2003

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